

# INTERNATIONAL SEARCH REPORT

International Application No.

/GB2004/003501

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC 7	E21B19/16	E21B33/068	E21B33/08	E21B21/10	F16K5/06
					F16K5/02

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7	E21B	F16K			
-------	------	------	--	--	--

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 298 385 A (GORDON JACKSON JOHN ET AL) 17 January 1967 (1967-01-17)	1-5, 9-12, 14-33, 35, 37-41, 43-51, 53-55
Y	column 1, line 66 – column 2, line 16; figures 1-4 column 3, lines 42-47 column 4, line 57 – column 5, line 20	14
X	US 4 448 267 A (CRAWFORD GEORGE M ET AL) 15 May 1984 (1984-05-15)	1-3, 9, 11, 19, 20, 23, 43-47, 50, 53-55
	figures 14, 15	—/—

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

\* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the International filing date but later than the priority date claimed

- \*T\* later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the International search

4 January 2005

Date of mailing of the International search report

12/01/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax (+31-70) 340-3016

Authorized officer

van Berlo, A

## INTERNATIONAL SEARCH REPORT

International Application No  
T/GB2004/003501

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2 224 657 A (RIAND RODGERS SEYMOUR) 10 December 1940 (1940-12-10) figure 2 -----	14
X	WO 03/025334 A (SHELL CANADA LTD ; VAN RIET EGBERT JAN (NL); SHELL INT RESEARCH (NL)) 27 March 2003 (2003-03-27) page 7, column 3 -----	27
X	US 4 566 494 A (ROCHE JOSEPH R) 28 January 1986 (1986-01-28) the whole document -----	43
A	US 2002/134555 A1 (PIETRAS BERND ET AL) 26 September 2002 (2002-09-26) paragraphs '0065! - '0067!; figures 5,6 -----	1,25,27, 39,40,43
A	US 4 646 844 A (ALEXANDER GABRIEL G ET AL) 3 March 1987 (1987-03-03) figures 1,2 -----	1
A	US 6 230 824 B1 (TANGEDAHL MICHAEL J ET AL) 15 May 2001 (2001-05-15) the whole document -----	6-8

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International Application No

T/GB2004/003501

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 3298385	A 17-01-1967	NONE		
US 4448267	A 15-05-1984	NONE		
US 2224657	A 10-12-1940	NONE		
WO 03025334	A 27-03-2003	BR 0212412 A		03-08-2004
		CA 2460161 A1		27-03-2003
		EG 23211 A		31-07-2004
		WO 03025334 A1		27-03-2003
		EP 1432887 A1		30-06-2004
		US 2004231889 A1		25-11-2004
US 4566494	A 28-01-1986	AT 35844 T		15-08-1988
		BR 8404737 A		26-12-1984
		CA 1221603 A1		12-05-1987
		DE 3472819 D1		25-08-1988
		EP 0131618 A1		23-01-1985
		JP 2015718 B		12-04-1990
		JP 60500455 T		04-04-1985
		NO 843647 A ,B,		14-09-1984
		WO 8402949 A1		02-08-1984
US 2002134555	A1 26-09-2002	US 6412554 B1		02-07-2002
		US 2003221519 A1		04-12-2003
		US 2004154835 A1		12-08-2004
		AU 3763501 A		24-09-2001
		CA 2401075 A1		20-09-2001
		EP 1264069 A2		11-12-2002
		WO 0169034 A2		20-09-2001
		NO 20024130 A		25-10-2002
US 4646844	A 03-03-1987	AT 50022 T		15-02-1990
		BR 8507143 A		31-03-1987
		CA 1240921 A1		23-08-1988
		DE 3575764 D1		08-03-1990
		EP 0207136 A1		07-01-1987
		JP 6043794 B		08-06-1994
		JP 62501512 T		18-06-1987
		NO 863379 A ,B,		22-08-1986
		WO 8603798 A1		03-07-1986
US 6230824	B1 15-05-2001	AU 3366599 A		18-10-1999
		BR 9909171 A		13-11-2001
		CA 2326358 A1		30-09-1999
		DE 69921639 D1		09-12-2004
		EP 1071862 A1		31-01-2001
		WO 9949173 A1		30-09-1999
		AU 3105599 A		18-10-1999
		AU 3366499 A		18-10-1999
		BR 9909170 A		04-12-2001
		BR 9909172 A		13-11-2001
		CA 2326129 A1		30-09-1999
		CA 2326353 A1		07-10-1999
		DE 69919691 D1		30-09-2004
		EP 1075582 A2		14-02-2001
		EP 1082515 A1		14-03-2001
		NO 20004849 A		27-11-2000

## INTERNATIONAL SEARCH REPORT

International Application No

/GB2004/003501

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 6230824	B1	WO	9950524 A2	07-10-1999
		WO	9949172 A1	30-09-1999
		US	6325159 B1	04-12-2001
		US	6102673 A	15-08-2000
		US	2004007392 A1	15-01-2004
		US	2002066596 A1	06-06-2002